

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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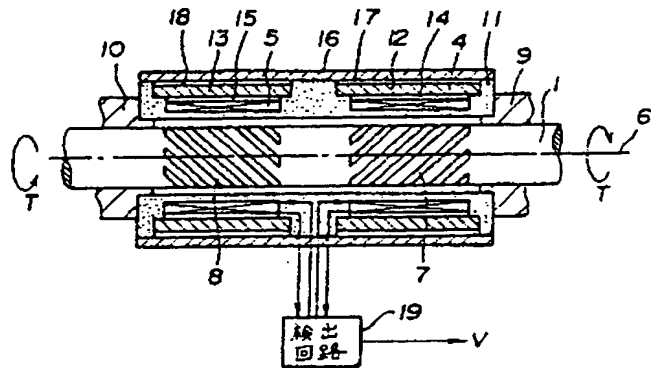
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APPLICATION NUMBER : 63309219

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INVENTOR : UTSUI YOSHIHIKO;

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TITLE : STRAIN DETECTOR



**ABSTRACT :** PURPOSE: To facilitate a winding operation and to prevent the mutual interference of magnetic yokes by providing the magnetic yokes made of high magnetic permeability soft magnetic materials at the outer peripheries of detection coils at an interval.

**CONSTITUTION:** When torque is applied to a driven shaft 1 from outside, magnetostrictive element piece groups 7 and 8 are strained to vary in magnetic permeability corresponding to the strain. The detection coils 4 and 5 detect the magnetic permeability variation as variation in magnetic impedance and a detecting circuit 19 which inputs the detection outputs generates their differential output as a strain detection output V. The magnetic yokes 12 and 13 decreases magnetic impedance viewed from the detection coils 4 and 5 to increase the sensitivity. The detection coils 4 and 5 can be driven with a low current, so the heat generation of the detection coils 4 and 5 is suppressed to reduce power-on drift. A shield 16 is formed of nonmagnetic metal and the skin depth of magnetic flux is reduced by skin effect during high-frequency driving to prevent the infiltration of an external magnetic field.

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